**SAP DTS**

**Functional analysis**

Document modifications

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# Functional requirements

## Description

The scope of this document is to describe the future integration b/w SAP and MIXCONT.

**Main assumption:**

* SAP will not have inspection plans but only material “test profile”
* SAP will notify MIXCONT when one Work Order is sent to BASE providing also additional details (see next chapter)
* Quality Controls are executed in MIXCONT system
* MIXCONT returns to SAP the Quality Controls into the Batch Classification
* The Usage Decision (for stock unblocking) will be taken in SAP by product team responsible (enhancement required not linked to MIXCONT integration) checking the batch status stored in a new dedicated batch characteristic

**Process steps:**

1. SAP sends to MIXCONT the Work Order released to BASE (with also additional details). The trigger event will be the sending to BASE. This will guarantee that BASE and MIXCONT will be notified at the same time with the same Orders to be worked.
2. Once the quality tests will be done, MIXCONT will send back to SAP the main quality controls results that will be stored into the batch classification.

**Attention Point:**

The characteristics values to be transferred from MIXCONT to SAP must be complaint with SAP format and rules (i.e. number of digits, number of decimals, unit of measure).

To guarantee it, during realization phase it will be evaluated the possibility to have an initial mass upload in MIXCONT for characteristic format and values.

**Note:**

Table and Structure with BLUE header line are relevant for SAP and MIXCONT both.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Field description** | **Optional** | **Format** | **Length** | **Notes and Rules** |
|  |  |  |  |  |  |

Table and Structure with GREEN header line are relevant only for SAP.

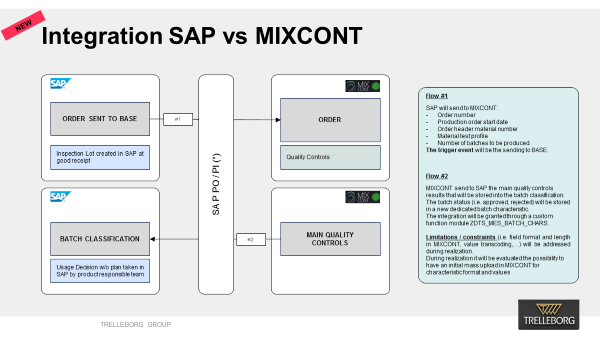
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Field description** | **Optional** | **Format** | **Length** | **Notes and Rules** |
|  |  |  |  |  |  |

## Proposed Solution

From a general perspective the integration between SAP and MIXCONT is built up using the SAP middleware PI/PO.

Data will be shared between SAP and MIXCONT using an SQL database created in Trelleborg premises.

SAP will write and/or read data from the SQL database through SAP PI (Middleware).



### FLOW #1

At work order release/update (*when a work order is relevant for BASE and sent to it*) the following information will be send to MIXCONT:

* Work Order number
* Material number
* Material Test Profile
* Number of batches to be produced
* Work Order scheduling start date

A new custom program **ZLCL\_DTS\_SEND\_DATA\_TO\_MIXCONT** will be created to extract and send the relevant orders to MIXCONT. The program will also display the data sent into an ALV list.

It can be used in test mode:

* If TEST check-box is set, nothing is sent.
* If TEST check-box is initial, the data are sent.

Input:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Field description** | **Optional** | **Format** | **Length** | **Notes and Rules** |
| MATNR | Material |  | CHAR | 40 |  |
| AUFNR | Order |  | CHAR | 12 |  |
| WERKS | Plant |  | CHAR | 4 |  |

**The shared table structure into the SQL DB will be finalized during realization but it will have at least following structure.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Field description** | **Optional** | **Format** | **Length** | **Notes and Rules** |
| AUFNR | Work Order number |  | CHAR | 12 |  |
| MATNR | Material number |  | CHAR | 40 |  |
| ZTESTPROFILE | Material Test Profile |  | CHAR | 4 |  |
| ZNOBATCHES | Number of batches to be produced |  | NUMC | 4 |  |
| GSTRP | Work Order scheduling start date |  | DATS | 8 | Format '25122018' |
| PROCESSED | Processing status |  | CHAR | 1 | By default, the value = 0. When MIXCONT reads the record, it will set it = 1. If some changes are made "PROCESSED" should be set = 0 again. |

SAP will insert/modify the Order entries directly into the shared table in the SQL DB.

Inserting will be done if it’s the first time that an Order is sent to MIXCONT; modify will be done if it’s a change flow of Order already sent to MIXCONT.

### FLOW #2

After the quality controls have been executed in MIXCONT they are written into the shared SQL DB table. SAP PI will read the characteristics values from the shared table in the SQL DB, transferring all relevant information to SAP to be stored in batch classification as *quality results*.

**The shared table structure into the SQL DB will be finalized during realization but it will have at least following structure.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Field description** | **Optional** | **Format** | **Length** | **Notes and Rules** |
| WERKS | Plant |  | CHAR | 4 | Fixed value 'SE10' |
| MATNR | Material Number |  | CHAR | 40 |  |
| CHARG | Batch Number |  | CHAR | 10 |  |
| INT\_CHAR\_NAME | Internal SAP Char name |  | CHAR | 30 |  |
| EXT\_CHAR\_NAME | External Char name |  | CHAR | 30 |  |
| VALUE | Value |  | CHAR | 30 |  |
| UNIT | Unit of Measure |  | UNIT | 3 |  |
| LINE\_STATUS | Line status |  | CHAR | 1 | Blank = line to be taken from PI  'X' = line already taken from PI |

SAP PI will take only entries in SQL table with LINE\_STATUS = blank and it will update the LINE\_STATUS to ‘X’ when an entry is taken and sent to SAP.

SAP PI will then send data to SAP calling the function **ZDTS\_MES\_BATCH\_CHARS**

Input Parameters:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Field description** | **Optional** | **Format** | **Length** | **Notes and Rules** |
| AUFNR | Order Number |  |  |  |  |
| WERKS | Plant |  |  |  | Fixed value 'SE10' |
| SENDER | Sender name |  |  |  | Fixed value 'MIXCONT' |

Table: BATCH\_CHARS

| **Field name** | **Field description** | **Optional** | **Format** | **Length** | **Notes and Rules** |
| --- | --- | --- | --- | --- | --- |
| WERKS | Plant |  | CHAR | 4 | Fixed value 'SE10' |
| MATNR | Material Number |  | CHAR | 40 |  |
| CHARG | Batch Number |  | CHAR | 10 |  |
| INT\_CHAR\_NAME | Internal SAP Char name |  | CHAR | 30 |  |
| EXT\_CHAR\_NAME | External Char name |  | CHAR | 30 |  |
| VALUE | Value |  | CHAR | 30 |  |
| UNIT | Unit of Measure |  | UNIT | 3 |  |
| TYPE |  |  | CHAR | 1 | Always Blank |
| ID |  |  | CHAR | 20 | Always Blank |
| ZNUMBER |  |  | NUMC | 3 | Always Blank |
| MESSAGE |  |  | CHAR | 220 | Always Blank |
| LOG\_NO |  |  | CHAR | 20 | Always Blank |
| LOG\_MSG\_NO |  |  | NUMC | 6 | Always Blank |
| MESSAGE\_V1 |  |  | CHAR | 50 | Always Blank |
| MESSAGE\_V2 |  |  | CHAR | 50 | Always Blank |
| MESSAGE\_V3 |  |  | CHAR | 50 | Always Blank |
| MESSAGE\_V4 |  |  | CHAR | 50 | Always Blank |

The outcome of the function execution will be the fulfillment of the staging area ZDTS\_MES\_BATCH\_CHARS into SAP.

The program ‘ZDTS\_MES\_BATCH\_CHARS’ reads the staging area ‘ZDTS\_MES\_BATCH\_CHARS’ and it enriches the batch classification.

Input Parameters:

| **Field name** | **Field description** | **Optional** | **Format** | **Length** | **Notes and Rules** |
| --- | --- | --- | --- | --- | --- |
| WERKS | Plant |  | CHAR | 4 |  |
| MATNR | Material Number | O | CHAR | 40 |  |
| CHARG | Batch Number | O | CHAR | 10 |  |
| TEST | Test Mode | O | Check-box |  |  |
| LAYOUT | Layout | O | Box |  |  |

Output Parameters:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Field description** | **Optional** | **Format** | **Length** | **Notes and Rules** |
| WERKS | Plant |  | CHAR | 4 |  |
| MATNR | Material Number |  | CHAR | 40 |  |
| CHARG | Batch Number |  | CHAR | 10 |  |
| CHAR\_NAME | Internal SAP Char name |  | CHAR | 30 |  |
| VALUE | Value |  | CHAR | 30 |  |
| UNIT | Unit of Measure |  | UNIT | 3 |  |
| ICON |  |  |  |  |  |
| MESSAGE |  |  |  |  |  |

Later on, the usage decision will be taken into SAP for each batch. To do so an inspection lot (w/o plan) will be automatically created into SAP at good receipt stage. The quality printout will be managed in MIXCONT.

## Constraints and point of attention

PI system middleware is used to exchange data between systems.

SAP S/4 system target landscape is composed by 3 environments:

| **SISTEMA** | **CLIENT** | **Environment** | **PI ABAP** | **PI Java** | **SAP Appl. Server** |
| --- | --- | --- | --- | --- | --- |
| H1D | 100 | DEV customizing only |  |  | * TcsStrSap011 |
| H1D | 200 | DEV data | PTA | PTJ | * TcsStrSap011 |
| H1T | 100 | TEST | PQA | PQJ | * TcsStrSap012 |
| H1P | 100 | PROD | PPA | PPJ | * Tcsstrsap020 * Tcsstrsap021 |

## Recommendation for testing

N/A

## Logging and Error Handling

N/A